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at least one flowtube;

[means for vibrating] a driver that vibrates said at least one flowtube at a fundamental frequency corresponding to a density of material flowing through said flowtube;

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means for monitoring drive gain in vibrating said at least one flowtube for a change in value to determine [the] an existence of a multiphase flow through said at least one flowtube; and

means [for responding to said monitoring means when said monitoring means determines the] responsive to an existence of said multiphase flow in said at least one flowtube for outputting a corrected density value.

2. (Amended)

The flowmeter as set forth in claim 1 wherein said means for monitoring [means] includes means for [comparing] for determining whether said drive gain [to] exceeds a first threshold value [to determine if said drive gain exceeds said threshold value] as an indicator of said multiphase flow.

3. (Amended)

The flowmeter as set forth in claim 2 wherein said threshold value is indicative of a first type of multiphase flow including gas and liquids.

4. (Amended)

The flowmeter as set forth in claim 3 wherein said means for monitoring means includes means for [comparing] determining whether said drive gain [to] exceeds a second threshold value [to determine if said drive gain exceeds said second threshold value as an indicator of] which indicates said multiphase flow [including] includes liquid and solid matter.

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5. (Amended)

The flowmeter as set forth in claim 1 wherein said [responding means] means for providing said corrected density value includes means for providing a new density value other than a density value corresponding to said fundamental frequency.

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6. (Cancel) The flowmeter as set forth in claim 5 wherein said providing means includes means for retrieving data representative of historical density measurements from said flowtube for use as said other density value.

a4 *See DP*  
7. (Amended) The flowmeter as set forth in claim 5 [6] wherein said means for providing said new density value comprises means for averaging historical density measurements [are averaged] over an interval of time to provide an average density value.

*See DP*  
8. The flowmeter as set forth in claim 7 wherein said historical density measurements are subjected to statistical analysis to eliminate or reduce spurious measurements from being included in said average density value.

*See DP*  
9. (Amended) The flowmeter as set forth in claim [5] 1 wherein said [providing] means [includes means for retrieving] for outputting said corrected density values provides data representative of density measurements obtained from laboratory measurements [for use] as said [other] corrected density value.

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10. (Amended) The flowmeter as set forth in claim [5] wherein said [providing] means [includes means for retrieving] for outputting provides data representative of density measurements obtained from a correlation for use as said [other] corrected density value.

11. (Amended) The flowmeter as set forth in claim 1 wherein said flowmeter is operably coupled with a producing well <sup>11</sup> for the conduct of measurements upon fluid flowing from said well, [and said responding means includes means for stopping] said flowmeter further comprising:

5 circuitry configured to close a valve to stop a well test in progress upon production flowing from said well.

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12. (Amended) The flowmeter as set forth in claim 1 wherein said flowmeter is operably coupled with a producing well for the conduct of measurements upon fluid flowing from said well, [and said responding means includes means] said flowmeter further comprises:

means for indicating an alarm indicative of said multiphase flow.

13. (Cancel) The flowmeter as set forth in claim 1 wherein said responding means includes means for providing drive gain as a meter output.

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14. (Amended) A method of operating a Coriolis flowmeter as a vibrating tube densitometer for material including a multiphase flow, said method comprising the steps of:

vibrating at least one flowtube of a Coriolis flowmeter at a fundamental frequency corresponding to a density of material flowing through said flowtube;

monitoring drive gain in vibrating said flowtube for a change in value to determine [the] an existence of multiphase flow through said flowtube; and

[responding to said monitoring means when said monitoring means determines the] outputting a corrected density value responsive to a determination of said existence of multiphase flow in said flowtube.

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15. The method as set forth in claim 14 wherein said step of monitoring drive gain includes comparing said drive gain to a threshold value to determine if said drive gain exceeds said threshold value as an indicator of multiphase flow.

16. The method as set forth in claim 15 wherein said step of comparing includes setting said threshold value as an indicator of multiphase flow including gas and liquids.

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17. The method as set forth in claim 16 wherein said step of comparing includes comparing said drive gain to a second threshold value to determine if said drive gain exceeds said second threshold value as an indicator of multiphase flow including liquid and solid matter.

18. (Cancel) The method as set forth in claim 14 wherein said step of responding includes providing a density value other than a density value corresponding to said fundamental frequency.

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19. (Amended) The method as set forth in claim [18] 14 wherein said step of [providing] outputting includes a step of retrieving data representative of historical density measurements from said flowtube for use as said [other] corrected density value.

20. The method as set forth in claim 19 including a step of averaging said historical density measurements are averaged over an interval of time to provide an average density value.

21. The method as set forth in claim 20 including a step of subjecting said historical density measurements to statistical analysis to eliminate or reduce spurious measurements from being included in said average density value.

22. The method as set forth in claim 18 wherein said providing means includes means for retrieving data representative of density measurements obtained from laboratory measurements for use as said other density value.

23. The flowmeter as set forth in claim 18 wherein said providing means includes means for retrieving data representative of density measurements obtained from a correlation for use as said other density value.